WP12 Management Report & EuCARD-2 Updates

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14 - 15th March 2017
WP12 4th (and final) Annual Review Meeting, NCBJ, Poland

EuCARD-2 is co-funded by the partners and the European Commission under Capacities 7th Framework Programme, Grant Agreement 312453

Outline

- Status of the Project
- Milestones and Deliverables
- Publications
  - Accreditation
- Monographs
- Accelerating News
- 3rd Periodic Report
- Annual Review Meeting
- Other H2020 Activities:
  - ARIES and AMICI
- Our meeting this week @ NCBJ

We are now only 49 days to the end of the EuCARD-2 project!

Contractual obligations (required to receive the final funding)

1. Upload on the EC web portal the **remaining deliverables** by 30 June 2017 (2 months after end).
   - No need to write long reports (10-20 pages is enough), but should keep a good scientific standard.
2. Complete the **3rd Periodic Report** covering the final year – 12 months – by end of M48 (April).
3. Complete and upload by 30 June 2017 the **Final Project Report**: a summary of all activities during the project, a summary of what reported in Intermediate Reports 1 (M18), 2 (M36) and 3 (M48).
4. Complete (by 30 June) all **Financial Reports**.

Only when all this is done, controlled and approved, the EC will unblock the last financial payment.

WP12 Milestones

Milestone	Title	Beneficiary	Date	Comments	
MS87	Fundamental SRF Thin Film physics report	CEA	M48	Final Activity Report	
MS84	Deposition test facility designed at CEA.	CEA	M40	Facility designed and validated (Merge with D12.10)	
MS78	Characterisation test facility implemented at HZB	HZB	M30	Facility implemented and validated	Task 12.2
MS88	Report summarising the results obtained in characterising the various new thin film technologies developed, which include both multilayer and monolayer techniques	CEA	M48	Final Activity Report	
MS81	RF design CLIC_DDS_B (Scope change agreed)	UNIMAN	M36 – Delayed to M48	Activity Report	
MS86	RF design of fully interleaved structure and CLIC SW study.	UNIMAN	M45	Activity Report	
MS76	1D-2D Code Benchmarking for a High Efficiency Klystron	CEA	M24	Activity Report	Task 12.3
MS74	Design concept RF front end	PSI	M12	Activity Report	
MS77	Phase stabilisation experiment design	ULANC	M24	Activity Report	
MS79	Crab cavity electromagnetic design	ULANC	M30	Activity Report	
MS82	Completed coupled cavity simulations of 8-cavity module	UNIMAN	M36	Activity Report (Merged with D12.7)	Task 12.4
MS80	Demonstrated operation of improved deposition system, Pb layers of 1 µm in thickness.	NCBJ	M30	Report on sample characterisation	
MS73	Commissioning of the SAPI for operation with metal photocathodes	STFC	M8	Publication report	
MS75	Investigation of quantum yield and energy spectrum of the electrons, emitted from the metal photocathode surface in SAPI	STFC	M18	Intermediate scientific report	Task 12.5
MS83	Manufacturing and commissioning of the photocathode transport system	STFC	M36	Technical design report	
MS85	Investigation of the brightness of different metal photocathodes in a S-band NCRF gun	STFC	M42 – Delayed to M48	Scientific report	

WP12 Deliverables

Deliverable	Title	Beneficiary	Date	Comments
D12.1	Deposition test facilities implemented and verified at CERN and INPG.	CERN	M18	Report
D12.5	First resonator deposited and qualified at CERN.	CERN	M40	Report
D12.10	Cavity deposited and qualified at CEA.	CEA	M48	Report
D12.2	Initial progress report of task 12.3.	CERN	M18	Report
D12.6	Intermediate progress report of task 12.3.	CERN	M36	Report
D12.11	Final report of task 12.3.	CERN	M48	Report
D12.3	Design of electronics for XFEL HOM diagnostics.	DESY	M18	Report
D12.7	Completed characterisation of HOMs in the 8-cavity XFEL 3HC module.	UNIMAN	M36	Report
D12.12	Report on characterisation of HOMs in XFEL coupled 3HC cryomodule.	UNIMAN	M48	Report
D12.4	Scientific report on photocathode R&D.	STFC	M18	Report
D12.8	Optimised procedure for preparation of flat, clean and adherent Pb/Nb films. (Scope change agreed)	NCBJ	M36	Report
D12.9	Pb/Nb plug photocathodes measurements and characterization.	HZDR	M42	Report
D12.13	Results of DAC implementation in SRF guns.	HZB	M48	Report (Under review)

Publication Accreditation

- **Still too many papers do not acknowledge EuCARD-2!**
- **Long version**:

  "The research leading to these results has received funding from the European Commission under the FP7 Research Infrastructures project EuCARD-2, grant agreement no.312453"
- **Short version**:

  "The work is part of EuCARD-2, partly funded by the European Commission, GA 312453."
- **Important for upcoming conferences:**
  - **IPAC17, Copenhagen, 14 – 19 May 2017**
  - **SRF2017, Lanzhou, 17 – 21 July 2017**

WP12 Publications (29)

Task	Author	Title	Publication	Accreditation
12.2	C.B. Baumier et al	Multilayers Activities at Saclay/Orsay	SRF2013	
12.2	G. Terenziani et al	Nb coating developments with HIPIMS for SRF applications, SRF2013 Proceedings	SRF2013	
12.2	F. Weiss et al	Chemical vapor deposition techniques for the multilayer coating of superconducting RF cavities	SRF2013	
12.2	F. Mercer et al	Niobium Nitride Thin Films deposited by High Temperature Chemical Vapor Deposition, Journal of Surface and Coatings Technology	10.1016/j.surfcoat.2014.08.084.	
12.2	N. Katzan et al	Characterization of Thin Films Using Local Magneometer	SRF2015	
12.2	S. Kechert et al	Optimizing a Calorimetry Chamber for the RF Characterization of Superconductors	MSc Thesis, Universität Siegen, 2015	
12.2	S. Kechert et al	Design and First Measurements of an Alternative Calorimetry Chamber for the HZB Quadrupole Resonator	SRF2015	
12.2	G. Rosaz et al	Biased HiPIMS technology for superconducting rf accelerating cavities coating	HIPIMS 2015	EuCARD
12.2	G. Rosaz et al	Development of Nb3Sn coatings by magnetron sputtering for SRF cavities	SRF2015	
12.3	M Dehler et al	Wake field monitors in a multi purpose X Band accelerating structure	IBIC2013	
12.3	G. Burt et			
12.3	B. Woolle			
12.4	L Shi et a			
12.4	J Heller e			Yes, but not correct accreditation
12.4	T Galek e			Yes, but not correct accreditation
12.4	J Heller e			Yes, but not correct accreditation
12.4	T Flisgen			
12.4	T. Flisgen			EuCARD
12.4	N. Baboi			
12.4	L. Shi et a			
12.4	T. Wamsa			
12.4	J. Heller			EuCARD
12.4	T. Flisgen			
12.4	T. Flisgen et al	Computation of External Quality Factors for RF Structures by Means of Model Order Reduction and a Perturbation Approach	Conf. Computetion and Mangentic Fields, 2015	
12.4	S. Liangliang et al	Stability and Resolution Studies of HOMBPMs for the 1.3 GHz Superconducting Accelerating Cavities at FLASH	LA3NET 2015	
12.5	R. Barday et al	Characterization of a Superconducting Pb Photocathode in a Superconducting RF Photoinjector Cavity	Phys. Rev. ST Accel. Beams 16, 123402.	
12.5	R. Kleindienst et al	Development of an optimized quadrupole resonator at HZB	SRF2013	
12.5	R. Nietubyć et al	Recent development in optimization of superconducting thin film lead photocathodes at NCBJ in Świerk	Proc. SPIE Vol. 8903 89032B	??
12.5	J. Lorkiewicz et al	Deposition and optimization of thin lead layers for superconducting accelerator photocathodes	Phys. Scr. 2014 014071	EuCARD

We are only ~50% successful overall, 80% successful in last year!

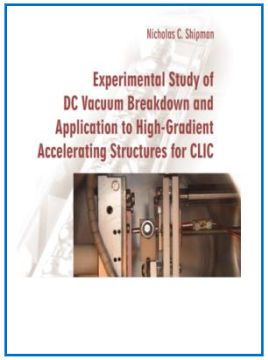
Need 100% accreditation of EuCARD-2 in final year!

All publications stored on CERN CDS: http://cds.cern.ch/collection/EuCARD-2

Monographs

- 11 RF activities published in EuCARD:

- We have 2 so far in EuCARD-2, with another 1 - 2 anticipated:



CLIC Crab Cavity
Ben Woolley

SRF Thin Film Characterisation
Sebastian Kechert

Additional WP12 Topics?!?!?

Who else are we expecting to graduate in the next year?

Schedule for final reporting

Periodic Report 3

- February - March 2017: writing (by Task Leaders).
- **30 March**: deadline for sending WP chapters for **Periodic Report 3**.
- 15 April : draft of Periodic Report 3 ready for comments.
- 30 April: final version of PR3 submitted to EC web portal.

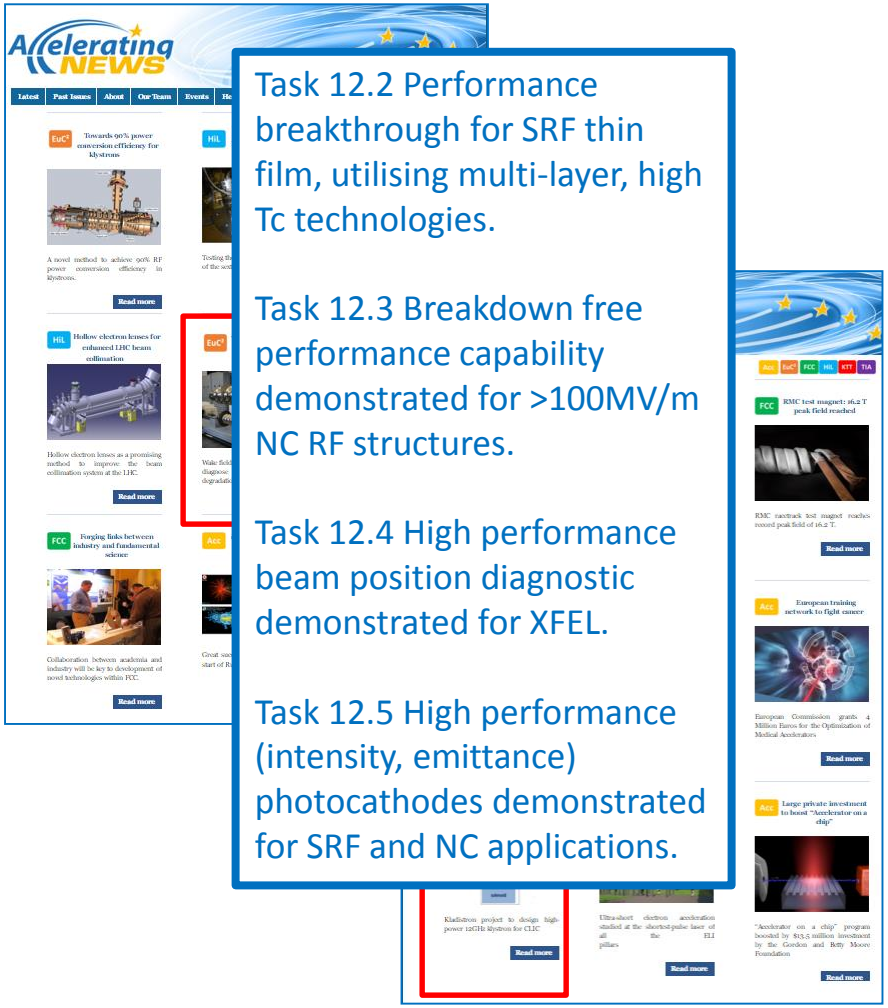
Final Report

- **15 May**: deadline for sending contributions for **Final Report**.
- 31 May: complete draft of Final Report ready for comments.
- 30 June: final version of Final Report submitted to EC web portal.

Accelerating News

- Issue 14 published (Jun 15):
  - Wake field monitoring to improve FEL performance (WP12 – M Dehler PSI)
- Issue 15 published (Nov 15):
  - The kladistron project for high-efficiency klystrons (WP12 – J Plouin CEA)
- **None in 2016!**
- Future contributions for WP12:
  - Final WP12 Annual Meeting, P McIntosh
  - **WP12 suggestions?**
    - **SRF thin film tests**
    - **Crab cavity tests**
    - **3.9GHz SRF HOM system for XFEL**
    - **Pb photocathodes**
    - **DAC photocathodes**
- **Next issues: March, June, September, even December.**

www.acceleratingnews.eu



EuCARD-2 4th Annual Review

- 28-30 March 2017 @ Strathclyde University, Glasgow
- **Encourage <u>all</u> WP12 collaborators to attend:**
  - https://indico.cern.ch/event/489475
- On Wednesday 29th March:
  - WP12 Report by P McIntosh.
  - WP12 Highlight talks on:
    - Beyond Niobium SRF materials: thin films and new superconductors, by C Antoine (CEA)
    - Numerical Simulations for Complex Superconducting RF Structures, by T Flisgen (UROS)

ARIES Roadmap

ARIES - Accelerator Research and Innovation for European Science and Society

- Project start 1st May 2017, duration 4 years.
- Budget of 10 M€ (for established communities and advanced topics).

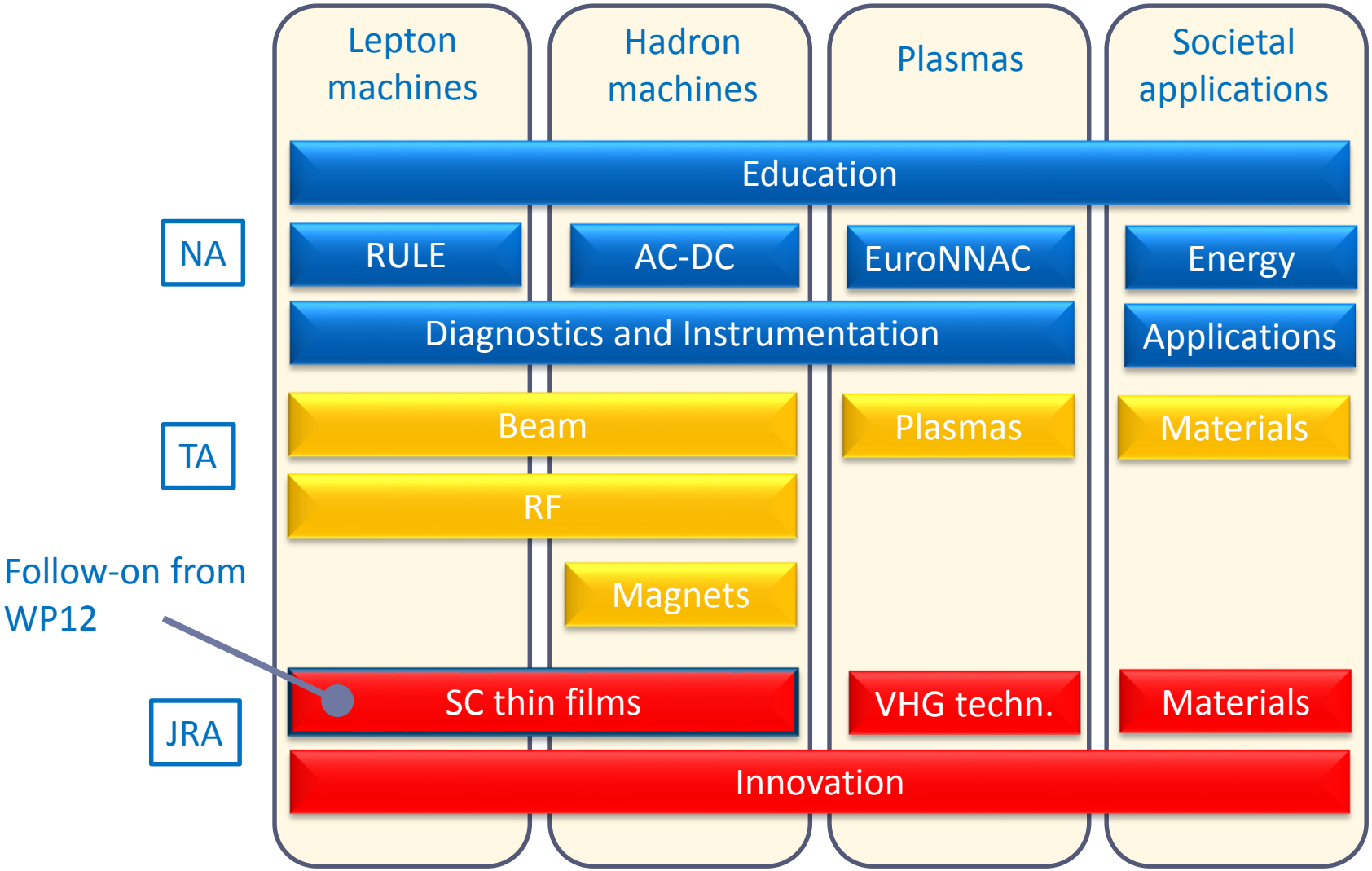
Integrating Activity

- To open up key national and regional research infrastructures to all European researchers and to ensure their optimal use and joint development:
  - Networking
  - Transnational/Virtual Access
  - Joint Research Activities for the improvement of RI services
- Emphasis on Management Efficiency, Innovation Capacity (technology transfer, participation of SMEs, instrumentation development), international dimension, management of generated data …

Kick-off meeting scheduled for 4 – 5th May 2017 at CERN

- https://indico.cern.ch/event/616743/

ARIES Integration



ARIES Highlights

- Project budget: 23.8 M€, requested EU contribution 10 M€, funding rate 42% (i.e. 58% matching funds from partners). Share of EC contribution: 38% NA, 23% TA, 39.0% JRA.
- WP coordinators: 6 from CERN, 4 from UK, 4 from Germany, 3 from France, 1 from Switzerland, 1 from Sweden. 4 female (21%).
- Expanded Transnational Access: cluster of 14 Test Facilities in European Laboratories and Universities used for Accelerator R&D where access is provided under the new project (only 3 in EC2).
- Portfolio of 22 key accelerator technologies to be developed within the project (after consultation of the community and in agreement with ESGARD). 3 to be developed in industry, 3 in collaboration with industry.
- Strong innovation JRA with industries and one industrial association, continued and more focused activity on applications and energy efficiency.
- Improved links with synchrotron light sources and ESS.
- New task on "sustainability of accelerator research" and new Network on "Education, training and outreach"
- Enlarged consortium: 42 beneficiaries from 18 European countries (+ CERN and ESS). In EC2, 40 beneficiaries from 12 countries.
- New in accelerator IA's: Portugal, Hungary, Latvia, Romania, Slovenia, Slovakia.

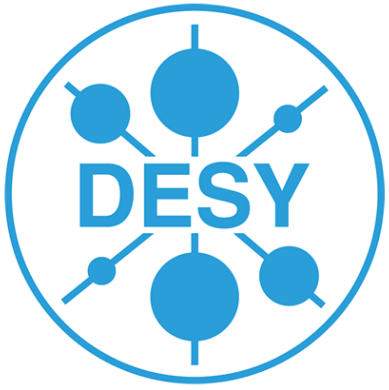
AMICI, 'qu'est-ce-que c'est ?'

- **AMICI**, for 'Accelerator and Magnet Infrastructure for Cooperation and Innovation', is an H2020 European '**Coordination and Support Action**' project.
- Aims at coordinating and supporting the Technological Infrastructure dedicated to the design, construction and validation of **accelerators and large superconducting magnets**, in European laboratories and industries.
- **Propose a model** for the long term **profitability** and **sustainability** of the Accelerator and Magnet Technological Infrastructure in Europe, based on the engagement of the European Commission, the National Agencies and Industry, serving **innovation** and **scientific research**.

O. Napoly, AMICI Coordinator, AMICI Kick-off Meeting, 18/1/2017

- 2.5 year programme, 2.3M€ secured from EC, started in Jan17.

AMICI Consortium



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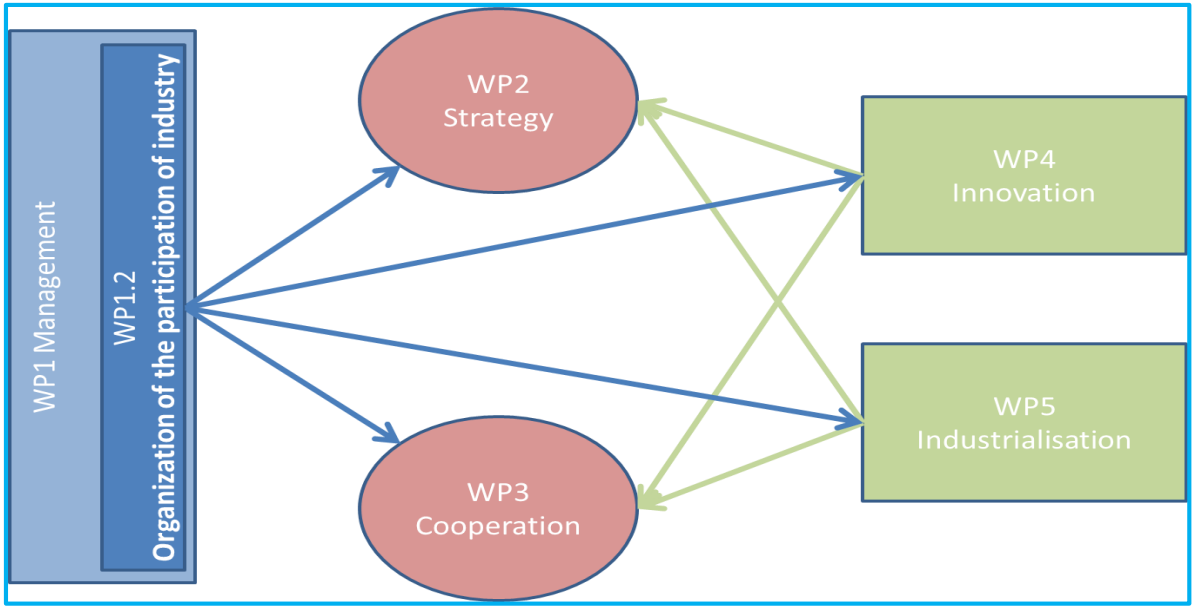
AMICI Activities

- In addition to taking up the construction and ensuring the success of future Research Insfrastructures worldwide, Accelerator and Magnet T-Infrastructure could host the following actions:
  - Research and Development of key technology prototypes
  - Development of innovative products for society
  - Test and verification of industrial products
  - Professional training and apprenticeship
  - Certification studies and training (e.g. vacuum, cleanliness, welding,…)
  - Harmonisation and standardization studies (e.g. cryogenics, material, …)
- Together, the **assessment** of these actions fit in two AMICI Work Packages:
  - WP4 : ‘Innovation’, for Industry’s benefit
  - WP5 : ‘Industrialization’, for Science’s benefit

AMICI Framework

- To optimize the future impact of these actions, i.e. matched to the needs of Society and Science applications, and their collaborative implementation, AMICI will assess their prevailing **strategic** elements will explore new and hopefully more efficient modes of **cooperation,** in the two Work Packages:
  - WP2 : 'Strategy'
  - WP3 : 'Cooperation'

WP1 'Management' will ensure the overall coordination of the project, including the capital question the **Industry participation**.



EuCARD² WP12 3rd Annual Review

Tuesday 14th March 2017		Location at NCBJ	
Wednesday 15th March 2017	**Duration**	**Title**	**Speaker**
11:45	00:30	Registration	
12:15	00:45	Lunch	
Time	**Duration**	**Title**	
08:00	00:45	Transport from hotels to NCBJ	
08:45	00:15	Coffee Break	
Task 12.4 SRF HOM Diagnostics			
09:00	00:15	Task 12.4 SRF HOM Diagnostics Introduction	Roger Jones
09:15	00:25	Measurements of FLASH and XFEL Cavities	Nicoleta Baboi
09:40	00:25	Characterisation of GSM-based simulations and experimental results on FL[illegible]avities	Nirav Joshi
10:05	00:25	Progress On SCC Simulations in FLASH and XFEL Cavities	Thomas Flisgen
10:30	00:30	Coffee	
Tour of NCBJ Facilities			
11:00	01:30	NCBJ Tour	
12:30	01:00	Lunch	
Task 12.5 RF Photocathodes			
13:30	00:10	Task 12.5 PF Photocathodes In[illegible]	Robert Nietubyc
13:40	00:20	Lead photocathodes: pr[illegible]ance	Robert Nietubyc
14:00	00:20	Metal Photocath[illegible]ury Laboratory: From Surface Science Tools to Accelerator	Boris Militsyn
14:20	00:20	Mg, Nb and [illegible] measurements and characterization	Rong Xiang
14:40	00:20	DAC [illegible]	Robert Nietubyc
15:00	00:30	[illegible]ory Cake	
15:30	[illegible]	[illegible] Closeout	P McIntosh
15:45	[illegible]	[illegible]ort to hotels and airport	
[illegible]	[illegible]	[illegible]	
19:[illegible]	[illegible]	Dinner at Warszawa Wschodnia	
		Transport back to hotels	

Speakers please ensure all talks are uploaded prior to session starting!

WP12 Annual Review

Organisation:

- Review hosted at: https://indico.cern.ch/event/605923/
- Group photograph during afternoon coffee break today at 15:15.
- Visit to the Neon Muzeum at 17:45 today.
- Review dinner this evening at 'Warszawa Wschodnia Restaurant' at 19:00 today.
- NCBJ facilities tour tomorrow: 11:00 – 12:30.
- Celebratory cake tomorrow at 15:00.

Many thanks:

- To the NCBJ organising team and in particular Robert Nietubyc and Valerie Brunner (CERN).
- To all WP12 task leaders.

Looking forward to a successful 4th (and final) WP12 review!

Follow Meeting on Twitter

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